

Claims:

1. A system comprising:
  - a first station capable of transmitting and receiving data modulated using a first modulation scheme;
  - a second station capable of transmitting and receiving data modulated using a second modulation scheme;
  - an access point for communicating with the first and the second stations;and wherein,
  - the access point transmits a beacon frame indicating a beginning of a contention-free period followed by a contention period, and, the contention-free period comprises a sub-contention period during which the second station is enabled to transmit data modulated according to the second modulation scheme following a distributed coordination function access mechanism.
2. The system of Claim 1, wherein the first modulation scheme is a DSSS/CCK modulation scheme.
3. The system of Claim 1, wherein the second modulation scheme is an OFDM modulation scheme.
4. The system of Claim 1, wherein the sub-contention period occurs at the end of the contention-free period.
5. The system of Claim 1, wherein the access point dynamically adjusts the duration of the sub-contention period.
6. The system of Claim 5, wherein the access point further adjusts the duration of the sub-contention period based on respective bandwidth requirements of the first and second stations.

7. The system of Claim 5, wherein the access point further adjusts the duration of the sub-contention period based on respective numbers of devices using the first and the second modulation schemes.
8. The system of Claim 1, wherein during the contention period, the second station sends a request-to-send frame comprising information representative of the second modulation scheme.
9. The system of Claim 1, wherein during the sub-contention period, the second station transmits request-to-send and clear-to-send frames modulated according to the second modulation scheme.
10. The system of Claim 1, wherein the second station sends an information field representative of the second modulation capability when joining the system.
11. The system of Claim 1, wherein the system operates under the IEEE 802.11 specification.
12. An access point for communicating over a local area network with a first station capable of transmitting and receiving data modulated according to a first modulation scheme and with a second station capable of transmitting and receiving data modulated according to a second modulation scheme, wherein the access point transmits a beacon frame indicating a beginning of a contention-free period followed by a contention period, and, the contention-free period comprises a sub-contention period during which the second station is enabled to transmit data modulated according to the second modulation scheme following a distributed coordination function access mechanism.
13. The access point of Claim 12, wherein the first modulation scheme is a DSSS/CKK modulation scheme.

14. The access point of Claim 12, wherein the second modulation scheme is an OFDM modulation scheme.
15. The access point of Claim 12, wherein the access point dynamically adjusts the duration of the sub-contention period.
16. The access point of Claim 12, wherein during the contention period, the access point sends a request-to-send frame comprising information representative of the second modulation scheme.
17. The access point of Claim 12, wherein during the sub-contention period, the access point transmits request-to-send and clear-to-send frames modulated according to the second modulation scheme.
18. The access point of Claim 12, wherein during the contention period, the access point receives from the second station a request-to-send frame comprising information representative of the second modulation scheme.
19. The access point of Claim 12, wherein the access point received from the second station an information field representative of the second modulation capability when the second station joins the local area network.
20. A station in a local area network, the station being capable of transmitting and receiving data using a first modulation scheme, the local area network further comprising a second station capable of transmitting and receiving data using a second modulation scheme and an access point for communicating with both stations, wherein the station receives a beacon frame transmitted by the access point indicating a beginning of a contention-free period followed by a contention period, and, the contention-free period comprises a sub-contention period during which the station is enabled to transmit data according to the first modulation scheme and following a distributed coordination function access mechanism.